IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF NORTH CAROLINA

HEART IMAGING TECHNOLOGIES, LLC,	)	
Plaintiff,	)	
v.	)	1:12CV1020
MERGE HEALTHCARE INCORPORATED,	)	
Defendant.	)	

MEMORANDUM OPINION AND ORDER

BEATY, District Judge.

This matter is before the Court on a Motion for a Preliminary Injunction [Doc. #15] filed by Plaintiff Heart Imaging Technologies, LLC ("Plaintiff" or "Heart IT"). Defendant Merge Healthcare Incorporated ("Defendant" or "Merge") opposes Heart IT's Motion for a Preliminary Injunction. The Motion was fully briefed as of March 16, 2013, and the Court held a hearing on the Motion on July 16, 2013.[1] Based on the arguments and information presented by the parties in briefing and at the hearing, the Court will deny Heart IT's Motion for a Preliminary Injunction.

I. FACTUAL AND PROCEDURAL BACKGROUND

This case involves a patent dispute related to U.S. Patent No. 6,934,698 ("'698 Patent"), U.S. Patent No. 7,457,656 ("'656 Patent"), and U.S. Patent No. 8,166,381 ("'381 Patent"). Heart

[1]The Court notes that the scope of the hearing was limited to the arguments and evidence presented in the parties' briefing on the Motion for a Preliminary Injunction completed on March 16, 2013. As such, the Court's disposition of the Motion for a Preliminary Injunction is limited to such arguments as well.

IT is the sole owner of the three Patents at issue in the underlying matter. In its Complaint, Heart IT alleges three counts of infringement against Merge regarding the '698 Patent, the '656 Patent, and the '381 Patent. Specifically, Heart IT alleges that a series of products created by Merge, including Cedara WebAccess, iConnect Access, and Merge Honeycomb[2] ("Accused Products"), infringe upon Heart IT's three Patents. In response to Heart IT's Complaint, Merge filed an Answer denying any infringement and asserting counterclaims for a declaratory judgment of non-infringement and invalidity as to all three Patents.

Each of the three Patents at issue in the underlying infringement action generally address medical image conversion and management technology. However, Heart IT's Motion only seeks an injunction to prevent Merge from infringing claim 1 of the '381 Patent. As such, the Court need only consider the '381 Patent at this time. The '381 Patent was filed as US Application Serial No. 11/238,406 on September 29, 2005, as a continuation of the '656 Patent, and was officially issued on April 24, 2012. (Pl.'s Opening Mem. [Doc. #16], at 7).[3] Prior to the '381 Patent, Heart IT contends that "a standard output format called DICOM (Digital Imaging and Communications in Medicine) [had] been adopted by the imaging industry." (Pl.'s Opening

[2]Despite being referred to by three different names, the Accused Products consist of only two products, as iConnect Access and Cedara WebAccess are different names for the same product. iConnect Access, formerly named Cedara WebAccess, is classified by Merge as "a 'zero-download' medical image viewer that allows users to view medical images in a browser." (Def.'s Initial Response Brief [Doc. #26], at 4). Merge Honeycomb classified by Merge as a "cloud-based product that allows users to upload, download, view, and share medical images" and the "viewing of images is only one of Honeycomb's features." (Def.'s Initial Response Brief [Doc. #26], at 4).

[3]When referring to the page numbers of documents cited throughout this Memorandum Opinion and Order, the Court will use the page numbers assigned to the document by the Clerk's Office during docketing rather than the page number assigned by Heart IT or Merge.

Mem. [Doc. #16], at 7). However, DICOM files were not "viewable on a browser" and instead required a computer to have "specialized software (e.g., plugs-ins) [to] enable [the computer] to view the DICOM files." (Pl.'s Opening Mem. [Doc. #16], at 4). More specifically, Heart IT contends that the large size of DICOM files causes delayed transfer times and takes up a large amount of disk space. (Pl.'s Opening Mem. [Doc. #16], at 4). Additionally, plug-ins or third-party software are necessary to enable the viewing of DICOM images, and this additional software takes time and effort to download, install, and maintain on each user device. (Pl.'s Opening Mem. [Doc. #16], at 4). Heart IT contends that the '381 Patent addressed both of these limitations by "translating DICOM files into simpler, browser-compatible formats (e.g., GIF or PNG images) *before* sending them to the user's device, while retaining diagnostic quality." (Pl.'s Opening Mem. [Doc. #16], at 5). Heart IT refers to this technology as "zero-footprint" technology because the end user only needs a standard Internet browser to view and manipulate the images. (Pl.'s Opening Mem. [Doc. #16], at 4).

For the purposes of Heart IT's Motion for a Preliminary Injunction, the relevant portion of the '381 Patent is claim 1,which reads as follows:

1. A method of managing medical information comprising:

> receiving at a first computer a plurality of image series resulting from a patient medical imaging procedure, each image series comprising one or more digital medical images in a format that is incompatible with displaying in an Internet web browser;
>
> providing a pointer associated with the patient medical imaging procedure;
>
> in response to user selection of the pointer at a second computer,
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> providing an Internet web page for display in an Internet web browser on the second computer, the Internet web page forming a user interface for a medical image workstation when displayed in the Internet web browser without requiring software executing outside the Internet web browser on the second computer, the user interface

comprising a rectangular grid of one or more rows and one or more columns for simultaneously displaying a plurality of navigational images in the user interface of the Internet web page, and

providing to the user the plurality of navigational images for display in the user interface of the Internet web page, the plurality of navigational images corresponding to different ones of the image series from the patient medical imaging procedure, the plurality of navigational images comprising a format that is compatible for displaying in an Internet web browser without requiring software executing outside the Internet web browser on the second computer, the plurality of navigational images being converted to a browser compatible format before being transmitted over the Internet, and

in response to user selection of one of the plurality of navigational images, providing to the user the one or more digital medical images of the image series associated with the selected one of the navigational images for display in the user interface of the Internet web page, the one or more digital medical images comprising a format that is compatible for displaying in the Internet web browser without requiring software executing outside the Internet web browser on the second computer, the one or more digital medical images providing medical information to the user, the one or more digital medical images being converted to a browser compatible format before being transmitted to the second computer,

wherein the medical image workstation enables user navigation among the plurality of navigational images and the one or more digital medical images of the image series to permit medical diagnosis from the one or more digital medical images without requiring software executing outside the Internet web browser.

('381 Patent, col. 11, lines 19-62, col. 12, lines 1-8).

More generally, Heart IT describes the patented process in claim 1 as follows:

Independent Claim 1 generally covers a method that (1) receives multiple medical image series on a first computer in a format that is incompatible with viewing on an Internet browser; (2) provides a pointer associated with the imaging procedure; (3) when the user selects the pointer, it displays an Internet web page that emulates a medical image workstation, including a grid showing one or more navigational images, using only the browser on the user's computer; (4) the navigational images each represent an image series from the study, and the navigational images are converted to a browser compatible format before being sent over the Internet as part of the web page; (5) when the user selects a navigational image, it displays the medical images of the series in the web page to provide medical information to the user, and the medical images are converted to a browser compatible format before being sent over the Internet; (6) thereby permitting diagnosis by giving users navigational images and diagnostic quality

image series in browser-compatible formats over the Internet.

(Pl.'s Opening Mem. [Doc. #16], at 8).

In its Motion for a Preliminary Injunction, Heart IT alleges that Merge's Accused Products operate in the same manner as the patented process described above and therefore infringe claim 1 of the '381 Patent. Specifically, Heart IT alleges that in 2006, Merge's medical imaging viewer was "based on the conventional design requiring specialized software in order to view the DICOM files, namely an Active-X plug in." (Pl.'s Opening Mem. [Doc. #16], at 5). However, Heart IT contends that in 2008 and 2009, after visiting Heart IT's online demonstration of its zero-footprint technology, Merge received approval from the FDA to market a new medical image viewer which utilized zero-footprint technology, and this technology is now utilized within the Accused Products. Based on this alleged infringement, Heart IT now seeks a preliminary injunction to "prevent [Merge] from infringing on the ['381 Patent] by selling its Accused Products, including Cedara WebAccess, iConnect Access, and Merge Honeycomb . . . pending trial of this matter." (Motion for a Preliminary Injunction [Doc. #15], at 1).[4]

II. MOTION FOR A PRELIMINARY INJUNCTION

"Injunctive relief in patent cases is authorized by 35 U.S.C. § 283." Anton/Bauer, Inc. v. PAG, Ltd., 329 F.3d 1343, 1348 (Fed. Cir. 2003). Generally, "a preliminary injunction is an

[4]The Court notes that at the hearing, Heart IT clarified that its Motion for a Preliminary Injunction seeks to enjoin Merge from any new advertising or sales of its Accused Products, but does not seek to enjoin the continued use of the Accused Products that have already been purchased and/or are already in use.

extraordinary remedy never awarded as of right." Winter v. Natural Res. Def. Council, Inc., 555 U.S. 7, 24, 129 S. Ct. 365, 376, 172 L. Ed. 2d 249 (2008). A movant seeking injunctive relief must establish four elements before such relief may issue: (1) it is likely to succeed on the merits; (2) it is likely to suffer irreparable harm in the absence of preliminary relief; (3) the balance of equities tips in its favor; and (4) an injunction is in the public interest. Winter, 555 U.S. at 20, 129 S. Ct. at 374. All four elements must be satisfied for the Court to grant a preliminary injunction. Id. In that regard, as the party seeking a preliminary injunction, Heart IT bears the burden of proof on each of these four elements. Reebok Int'l Ltd. v. Baker, Inc., 32 F.3d 1552, 1555 (Fed. Cir. 1994). To determine whether Heart IT has satisfied its burden, the Court will analyze each element individually.

A. LIKELIHOOD OF SUCCESS ON THE MERITS

"[A]t the preliminary injunction stage, because of the extraordinary nature of the relief, the *patentee* carries the burden of showing likelihood of success on the merits with respect to the patent's validity, enforceability, and infringement." Nutrition 21 v. United States, 930 F.2d 867, 869 (Fed. Cir. 1991) (emphasis in original). "[T]he [patentee] must show, in light of the burdens that will inhere at trial, that (1) it will likely prove infringement and (2) any challenges to the validity and enforceability of its patent 'lack substantial merit.'" Anton/Bauer, Inc., 329 F.3d at 1348. Still, a patentee need only show that it will likely prove infringement and validity as to "at least one valid and enforceable patent claim." Abbott Labs. v. Andrx Pharm., Inc., 473 F.3d 1196, 1201 (Fed. Cir. 2007) ("Abbott II").

However, an accused infringer can successfully challenge a patentee's showing of a

likelihood of success by raising a "'substantial question' concerning validity, enforceability, or infringement." Abbott Labs. v. Andrx Pharm., Inc., 452 F.3d 1331, 1335 n.2 (Fed. Cir. 2006) ("Abbott I"). If the alleged infringer raises a substantial question regarding validity, enforceability, or infringement and the patentee cannot show that such question "lacks substantial merit," a preliminary injunction should not issue. Id.

For the purposes of Heart IT's Motion for a Preliminary Injunction, claim 1 of the '381 Patent is the only relevant claim. Thus, Heart IT must show that (1) it likely will prove Merge's Accused Products infringe on claim 1 of the '381 Patent and (2) that claim 1 of the '381 Patent likely will withstand Merge's challenges to its validity. Each of these requirements will be discussed in turn.

1. Likelihood of Success: Infringement on Claim 1 of the '381 Patent

A determination of patent infringement requires a two-step analysis: (1) the proper construction of the asserted claim and (2) a determination as to whether the accused method or product infringes the asserted claim as properly construed. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1581-82 (Fed. Cir. 1996). As such, to evaluate the likelihood that Heart IT will successfully show that Merge's Accused Products infringe on claim 1 of the '381 Patent, the Court must consider both steps in the infringement analysis.

a. Step 1: Claim Construction of the Asserted Claim

With regard to claim construction, at the preliminary injunction stage, "a district court does not have to conduct a comprehensive and final claim construction." Shuffle Master, Inc. v. VendingData Corp., 163 F. App'x 864, 867 (Fed. Cir. 2005). Instead, "[d]istrict courts may

engage in a rolling claim construction, in which the court revisits and alters its interpretation of the claim terms as its understanding of the technology evolves." Jack Guttman, Inc. v. Kopykake Enter., Inc., 302 F.3d 1352, 1361 (Fed. Cir. 2002). "A district court therefore is at liberty to change the construction of a claim term as the record in a case evolves after a preliminary injunction appeal." Transonic Sys., Inc. v. Non-Invasive Med.Tech. Corp., 75 Fed. App'x 765, 774 (Fed. Cir. 2003). However, because a court still has the "duty to determine whether the movant is likely to prevail on the merits . . . if that question turns on a contested issue of claim construction, the court must give the claim construction issue the attention necessary to determine the likelihood of success." Shuffle Master, Inc., 163 F. App'x at 868. In that regard, the Court here must perform a tentative claim construction for the purposes of determining the likelihood that Heart IT will succeed on its infringement claim.

In performing a claim construction analysis, it is well-settled that, in interpreting an asserted claim, a court should look to the intrinsic evidence of record, including "the claims, the specification and, if in evidence, the prosecution history." Vitronics Corp., 90 F.3d at 1582. First, a court should "look to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention." Id. Generally, the words of a patent claim are "given their ordinary and customary meaning," that is, the "meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." Phillips v. AWH Corp., 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (internal quotations omitted). "Importantly, the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the

disputed term appears, but in the context of the entire patent, including the specification." Id. at 1313.

Second, a court must also "review the specification to determine whether the inventor has used any terms in a manner inconsistent with their ordinary meaning." Vitronics Corp., 90 F.3d at 1582. The specification "contains a written description of the invention which must be clear and complete enough to enable those of ordinary skill in the art to make and use it." Id. Thus, the "specification acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." Id. Accordingly, "the specification is always highly relevant to the claim construction analysis" and "[u]sually, it is dispositive." Id.

The third type of intrinsic evidence a court should consider is the patent's prosecution history, if it is in evidence. Id. This history, if available, "contains the complete record of all the proceedings before the Patent and Trademark Office, including any express representations made by the applicant regarding the scope of the claims." Id. "As such, the record before the Patent and Trademark Office is often of critical significance in determining the meaning of the claims." Id. However, "because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes." Phillips, 415 F.3d at 1317.

Where an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term, it is improper to rely on extrinsic evidence. Vitronics Corp., 90 F.3d at 1583. However, if intrinsic evidence cannot resolve an ambiguity in a disputed term, extrinsic evidence

may be considered. Id. Extrinsic evidence "consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises." Phillips, 415 F.3d at 1317. Still, extrinsic evidence should only be used for a court's understanding of the patent and "not for the purpose of varying or contradicting the terms of the claims." Markman v. Westview Instruments, Inc., 52 F.3d 967, 981 (Fed. Cir. 1995).

In the context of Heart IT's Motion for a Preliminary Injunction, the parties dispute the construction of the claim term "software executing outside the Internet web browser" and the claim term "incompatible with displaying in an Internet web browser." These disputed claim terms will be discussed in turn.[5]

1. **"[without requiring] software executing outside the Internet web browser"**[6]

The above referenced claim term is included within claim 1 of the '381 Patent. Heart IT

[5]The Court notes that at this time, the parties have provided a Joint Claim Construction and Prehearing Statement [Doc. #55] for the claim construction proceeding in the underlying matter. This Joint Statement indicates that the parties dispute six claim terms within claim 1 of the '381 Patent. However, as the Court noted in its July 8, 2013 Order, the Court's consideration of Heart IT's Motion for a Preliminary Injunction is limited to the claim terms and proposed constructions offered by the parties in the briefing on the Motion for a Preliminary Injunction that was completed on March 16, 2013. The Court may subsequently adjust any constructions made during the preliminary injunction stage if necessary as the case proceeds. See Transonic Sys., Inc, 75 Fed. App'x at 774 ("A district court . . . is at liberty to change the construction of a claim term as the record in a case evolves after a preliminary injunction appeal.").

[6]Each of the four times the claim term "software executing outside the Internet web browser" is used within claim 1, it is immediately preceded by the phrase "without requiring." Thus, a more complete construction of the claim term includes a consideration of the entire claim phrase "[without requiring] software executing outside the Internet web browser," as the distinct nature of the claim lies in the "zero-footprint" technology, which enables a user to view images without the installation of any software to facilitate the viewing.

proposes that the claim term be construed as "[without requiring] external software that facilitates the presentation of images, as exemplified by JAVA and MPEG viewers." However, Merge proposes that the claim term be construed as "[without requiring] software other than the Internet web browser." The claim term appears four times throughout claim 1 of the '381 Patent in the following contexts (emphasis added to disputed claim term):

> . . . providing an Internet web page for display in an Internet web browser on the second computer, the Internet web page forming a user interface for a medical image workstation when displayed in the Internet web browser *without requiring software executing outside the Internet web browser* on the second computer, the user interface comprising a rectangular grid of one or more rows and one or more columns for simultaneously displaying a plurality of navigational images in the user interface of the Internet web page, and
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> providing to the user the plurality of navigational images for display in the user interface of the Internet web page, the plurality of navigational images corresponding to different ones of the image series from the patient medical imaging procedure, the plurality of navigational images comprising a format that is compatible for displaying in an Internet web browser *without requiring software executing outside the Internet web browser* on the second computer, the plurality of navigational images being converted to a browser compatible format before being transmitted over the Internet, and
>
> in response to user selection of one of the plurality of navigational images, providing to the user the one or more digital medical images of the image series associated with the selected one of the navigational images for display in the user interface of the Internet web page, the one or more digital medical images comprising a format that is compatible for displaying in the Internet web browser *without requiring software executing outside the Internet web browser* on the second computer, the one or more digital medical images providing medical information to the user, the one or more digital medical images being converted to a browser compatible format before being transmitted to the second computer,
>
> wherein the medical image workstation enables user navigation among the plurality of navigational images and the one or more digital medical images of the image series to permit medical diagnosis from the one or more digital medical images *without requiring software executing outside the Internet web browser*.

('381 Patent , col. 11, lines 30-62, col. 12, lines 1-8).

The first dispute between the parties regarding the construction of "[without requiring] software executing outside the Internet web browser" involves determining from which computer or computers software must be excluded. Within claim 1, three of the four times the claim term "[without requiring] software executing outside the Internet web browser" is used, the claim term is immediately followed by the phrase "on the second computer," thereby specifying that the patented process allows the images to be viewed on the second computer "[without requiring] software executing outside the Internet web browser *on the second computer*." (('381 Patent , col. 11, lines 30-62, col. 12, lines 1-2). However, the fourth use of the claim term is not followed by the phrase "on the second computer." Instead, the fourth use of the claim term is as follows:

> wherein the medical image workstation enables user navigation among the plurality of navigational images and the one or more digital medical images of the image series to permit medical diagnosis from the one or more digital medical images *without requiring software executing outside the Internet web browser*.

('381 Patent col. 12, lines 3-8). Based on the absence of the phrase "on the second computer" following the fourth use of the disputed claim term, Merge contends that a construction of the claim term must encompass a process that does not require software executing outside the Internet web browser "on the first computer, on the second computer, or any other computer." (Merge Surreply [Doc. #36], at 4). In that regard, Merge argues that its proposed construction of "[without requiring] software other than the Internet web browser" is necessary because it encompasses the fourth use of the claim term which must be read as excluding any external software at the first computer, second computer, or any other computer.

In response, Heart IT argues that Merge's contention regarding the absence of the "on

the second computer" language following the fourth use of the disputed claim term "violates normal claim construction rules and ignores overwhelming intrinsic evidence to the contrary." (Response to Surreply [Doc. #47], at 2). Heart IT contends that claim 1 of the '381 Patent is "constructed so that each of the . . . claim elements build on the previous element." (Response to Surreply [Doc. #47], at 2). The first three times the disputed term is used within claim 1, it is in the context of detailing what the first computer must "provide" in response to an action by the user on the second computer, while the fourth use of the disputed term does not contain any "providing" language. Instead, the fourth use of the disputed term is preceded by a "wherein" clause, which Heart IT contends "summarizes the previous five elements and adds the requirement that the claimed system 'permits medical diagnosis from the one or more digital medical images.'" (Response to Surreply [Doc. #47], at 2).

A consideration of the prosecution history of the '381 Patent supports Heart IT's contention that the absence of the phrase "on the second computer" following the fourth use of the disputed claim term does not necessitate a construction requiring software to be excluded from the first computer, the second computer, or any other computer. The disputed claim term "[without requiring] software executing outside the Internet web browser" was added during the prosecution history of the '381 Patent, following the '381 Patent's rejection for being unpatentable in light of a U.S. Patent No. 6,349,330 ("the Bernadett Patent") and U.S. Patent No. 2002/0018254 ("the Saito Patent"). The prosecution history noted that the Bernadett Patent "teaches a method that requires software executing outside an Internet web browser, namely an MPEG viewer, to view a lossy medical image movie file, and that viewing that movie

file *using that external software* is a prerequisite for viewing lossless, diagnostic quality medical images selected from among the frames of the movie file." (PTO Action [Doc. #33-2], at 7). While the Bernadett Patent's system is "incapable of viewing any medical images without using software executing outside the Internet web browser, namely an MPEG viewer," the prosecution history notes that the '381 Patent "claims a method for a medical image workstation that enables user navigation among a plurality of navigational images and one or more digital medical images to permit medical diagnosis from the one or more medical images - - without requiring software executing outside the Internet web browser." (PTO Action [Doc. #33-2], at 8).

Further, the Patent Examiner's Interview Summary dated February 24, 2012 contains a statement addressing the differences between the newly added claims to the '381 Patent and the Bernadett and Saito Patents. In the statement, the Patent Examiner recognizes that in the Bernadett and Saito Patents, "though the medical images are converted to the web format, these web format images are viewed on the web browser with an additional software unlike in the invention, the medical images are viewed on the web browser without any software executing outside the web browser." (Examiner Interview Summary [Doc. #33-3], at 1).

This prosecution history supports Heart IT's contention that a proper construction of "[without requiring] software executing outside the Internet web browser" will only exclude such software from the second computer in the process, despite the phrase "on the second computer" being omitted from the fourth use of the claim term. The prosecution history evidences a distinction made between the "viewing" of medical images under the Bernadett

Patent and the '381 Patent. The Interview Summary also focuses on the use of external software in the "viewing" of medical images, noting that in the '381 Patent, the medical images are "viewed on the web browser without any software executing outside the web browser" unlike the Bernadett Patent which requires images to be "viewed on the web browser with an additional software." (Examiner Interview Summary [Doc. #33-3], at 1). The "viewing" of images discussed in both Patents necessarily takes place at the second computer, as the '381 Patent claims a process that involves receiving medical images at a first computer that are then accessed by a user on a second computer for the purposes of viewing the image and permitting medical diagnosis. Thus, based on the claim language itself and the prosecution history, the Court finds that a proper construction of the disputed term applies to software on the second computer, where the user is viewing images, and not to software on the first computer or any other computer in the process.

However, even construing the disputed claim term to limit only the use of certain software on the second computer, Merge argues that its construction of "[without requiring] software other than the Internet web browser" is more plainly supported by the '381 Patent claim language. Merge supports this contention by focusing on the word "outside" in the claim language. Because the claim language covers a process that does not require software executing "outside" the Internet web browser, Merge contends that the claim language "does not preclude the usage of plug-ins such as Flash, Java Applets, Silverlight, etc. because such web browser plug-ins can be considered to be 'software executing inside the Internet web browser.'" (Declaration of Atul Agarwal [Doc. #29], at 3). However, this construction of "outside" is not

supported by the intrinsic evidence of the '381 Patent. Instead, the specification specifically distinguishes the claimed system from a system in which a Java program runs inside the web browser on the second computer. For example, the specification notes that "[u]sing the 'Java' model, the client is no longer simply using the browser to view 'static' files downloaded from the server, but rather in addition the client's computer is running a program that was sent from the server." ('381 Patent, col. 3, lines 24-26). The specification further highlights some of the disadvantages of using a "Java" model, including "additional [wait] time while the 'Java' code is downloaded" and frequent problems with the Java code "caus[ing] browser's to 'crash.'" ('381 Patent, col. 3, lines 27-34). However, the '381 Patent claims a process which purportedly "overcome[s]" the "limitations of current Internet standards," including those of the Java model. ('381 Patent, col. 4, lines 9-10). Thus, Merge's contention that the '381 Patent does not claim a process excluding software running inside the Internet web browser, such as certain Java or other plug-ins, is not supported by the intrinsic evidence of the '381 Patent.

In that regard, Heart IT's proposed construction of "[without requiring] external software that facilitates the presentation of images, as exemplified by JAVA and MPEG viewers" is the most appropriate construction at this time. Based on the intrinsic evidence of the '381 Patent, the use of the term "external" in Heart IT's proposed construction is most properly understood to refer to software external to the Internet web browser software itself, whether such software runs outside of the Internet web browser or runs inside of the Internet web browser. Further, Heart IT's proposed construction evidences that the disputed claim term is limited to excluding software necessary to facilitate the viewing of images on the second computer and does not

extend to excluding software unrelated to the viewing of images.

In contrast, Merge's proposed construction of "[without requiring] software other than the Internet web browser" broadens the scope of the claim term beyond the claim language by seeking to exclude software from all computers used in the process. Further, Merge's proposed construction seeks to exclude all software other than the Internet web browser itself, whether or not such software is necessary to facilitate the viewing of images.[7] In that regard, Merge's proposed construction is broader than necessary and is not properly supported by the claim language and specification, which indicate that any software exclusion is limited to software necessary to facilitate the viewing of images on the second computer. Accordingly, at this stage, the Court finds that Heart IT's proposed construction of "[without requiring] external software that facilitates the presentation of images, as exemplified by JAVA and MPEG viewers" is the most appropriate construction.

2. "incompatible with displaying in an Internet web browser"

The above referenced claim term is included within claim 1 of the '381 Patent. Heart IT proposes that the claim term be construed as "a format that cannot be viewed in a standard Internet web browser without the assistance of external software that facilitates the presentation

[7]More specifically, Merge argues that navigation between user images on the second computer in the Accused Products necessarily requires software other than the Internet web browser, including "software for controlling an input device (such as a mouse) and software used to translate DICOM images into another format (such as PNG)." (Def.'s Initial Response Brief [Doc. #26], at 9). However, the claim language, specification, and prosecution history of the '381 Patent do not support a construction excluding the use of any software outside of the Internet web browser on the second computer. Instead, an appropriate construction excludes only software relating to the viewing of images.

of images." However, while Merge raises the contention in its initial brief that this term is "ambiguous," Merge does not propose a specific construction of the term in its Surreply Brief. Thus, Merge's response is most appropriately interpreted as a contention that the claim term is indefinite and cannot be construed. As a threshold matter, in order to prove indefiniteness of a claim term, Merge must "demonstrate by clear and convincing evidence that one of ordinary skill in the relevant art could not discern the boundaries of the claim based on the claim language, the specification, the prosecution history, and the knowledge in the relevant art." Volumetrics Med. Imaging, LLC v. Toshiba Am. Med. Sys., Inc., 2011 WL 6934603, at *5 (M.D.N.C. Dec. 30, 2011) (citing Haemonetics Corp. v. Baxter Healthcare Corp., 607 F.3d 776, 783 (Fed. Cir. 2010)).

Here, the disputed claim term appears only once in the first element of claim 1 of the '381 Patent as follows (emphasis on disputed term):

> receiving at a first computer a plurality of image series resulting from a patient medical imaging procedure, each image series comprising one or more digital medical images in a format that is *incompatible with displaying in an Internet web browser*.

('381 Patent, col. 11, lines 21-25).

The specification of the '381 Patent indicates that the Patent emerged from a "realization that if medical images of different formats could be processed in such a way that limitations of current Internet standards could be overcome, any standard Internet browser could be used as a diagnostic workstation to allow any medical image to be viewed from any location on earth without specialized hardware or software." ('381 Patent, col. 4, lines 6-13). The claim language further indicates that images requiring specialized hardware or software to facilitate viewing are

in such formats considered "incompatible with displaying in an Internet web browser." ('381 Patent, col. 11, lines 24-25). Examples of such "incompatible" formats are provided within the specification, which specifically highlights "a variety of formats which are standard but cannot be displayed by browsers, such as, for example, DICOM." ('381 Patent, col. 7, lines 25-31). Thus, the specification indicates that certain image formats will require additional steps in order to be capable of being viewed in an Internet web browser. However, the '381 Patent claims a process by which such incompatible formats are converted on the first computer into formats capable of being viewed in an Internet web browser.

In that regard, Heart IT's proposed construction of the disputed claim term "incompatible with displaying in an Internet web browser" as "a format that cannot be viewed in a standard Internet web browser without the assistance of external software that facilitates the presentation of images" is supported by the intrinsic evidence of the '381 Patent. As such, Merge's indefiniteness argument necessarily fails because it is possible for one with ordinary skill in the art to discern the boundaries of the disputed claim term. Accordingly, at this stage, the Court finds that Heart IT's proposed construction of "a format that cannot be viewed in a standard Internet web browser without the assistance of external software that facilitates the presentation of images" is the most appropriate construction.

b. Step 2: Infringement Analysis

After construing the disputed claim terms, the Court must now consider whether Merge's Accused Products infringe upon claim 1 of the '381 Patent. This step involves a "comparison of the claim to the accused device" and "requires a determination that every claim limitation or

its equivalent be found in the accused device." Oakley, Inc. v. Sunglass Hut Int'l, 316 F.3d 1331, 1339 (Fed. Cir. 2003). Further, if Merge has raised a "'substantial question' concerning . . . infringement" and Heart IT has not shown that such question "lacks substantial merit," a preliminary injunction should not issue. Abbott I, 452 F.3d at 1335 n.2.

To support a showing of infringement, Heart IT offers the Declaration of its expert, Dr. John Grizzard, a radiologist and an associate professor of diagnostic radiology at Virginia Commonwealth University. Dr. Grizzard compares each element of claim 1 of the '381 Patent to the process utilized in Merge's Honeycomb product by accessing Merge's Honeycomb website.[8] Dr. Grizzard first obtained publicly available medical images in a DICOM format, then logged onto the Merge Honeycomb website and uploaded the DICOM formatted images onto Merge's Honeycomb server computer, which is properly considered the "first computer" for the purposes of the '381 Patent. (Declaration of Dr. Grizzard [Doc. #16-1], at 4). After uploading these DICOM images to Merge's Honeycomb server computer, Dr. Grizzard contends that Honeycomb created a "pointer" associated with the uploaded images, just as the '381 Patent provides for "a pointer associated with the patient medical imaging procedure." ('381 Patent, col. 11, lines 26-27). Next, upon selection of the pointer on Dr. Grizzard's computer, which is properly considered the "second computer" for the purposes of the '381 Patent, Dr. Grizzard contends that Honeycomb responded by sending a webpage with a user interface of a medical image workstation which displayed on Dr. Grizzard's computer "without

[8]Dr. Grizzard states that "the underlying functionality of Honeycomb is identical to iConnect Access," making his infringement analysis applicable to both of the Accused Products. (Declaration of Dr. Grizzard [Doc. #16-1], at 2).

any software other than the browser." (Declaration of Dr. Grizzard [Doc. #16-1], at 5). Further, Dr. Grizzard contends that the navigational images provided by the Honeycomb "were converted to a browser-compatible format before being transmitted over the Internet by Honeycomb server." (Declaration of Dr. Grizzard [Doc. #16-1], at 6). Specifically, the images accessed by Dr. Grizzard were received in portable network graphics ("PNG") formats. (Declaration of Dr. Grizzard [Doc. #16-1], at 6). Finally, Dr. Grizzard contends that the Honeycomb image workstation on his computer allowed him to access navigational images and full image series in a browser-compatible format sufficient to permit medical diagnosis on his computer. (Declaration of Dr. Grizzard [Doc. #16-1], at 8). Based on Dr. Grizzard's Declaration, Heart IT contends that the Accused Products infringe on every element of claim 1 of the '381 Patent.

Despite Dr. Grizzard's Declaration, Merge contends that the Accused Products do not infringe on claim 1 of the '381 Patent because the Accused Products process images "on the fly," meaning that "every time a new image is requested [on the second computer], the image is retrieved from its source, converted to the PNG file format [on the first computer], and transmitted to the user's computer 'on the fly.'" (Merge Surreply [Doc. #36], at 5). In contrast, Merge contends that the '381 Patent claims a system that pre-coverts all images and saves them to a database before a user on a second computer makes a request for a specific image, thus avoiding any delay inherent in "on the fly" processing. To support this contention, Merge cites to the specification of the '381 Patent, which, in referencing a previous patent, notes that the approach of the previous patent "creat[ed] Web Pages 'on the fly,' meaning that the user must

wait for the image processing to complete." ('381 Patent, col. 3, lines 44-46). The specification further states that "systems designed to create Web Pages 'on the fly' introduce a delay of seconds to minutes while the person requesting to view the images waits for the data to be processed." ('381 Patent, col. 3, lines 2-7). In contrast, in discussing the preferred embodiment of the invention claimed in the '381 Patent, the specification notes that "[b]ecause images are already stored in the format of Internet Web Pages, no processing of the data is required resulting in maximum speeds for image access and transfer and ensuring minimum costs for the overall system." ('381 Patent, col. 10, lines 3-7). Based on this intrinsic evidence, Merge contends that the "on the fly" processing utilized within the Accused Products prevent the Accused Products from infringing the '381 Patent.

In response to this argument, Heart IT contends that "[w]hether the software running on the server performs image conversion 'on the fly' or not is irrelevant." (Response to Surreply [Doc. #47], at 3). Instead, Heart IT argues that "the '381 Patent specification describes server software that converts the images to a browser-compatible format before transmitting them over the Internet and the images retain diagnostic quality" without requiring Java or other plug-ins on the second computer. (Response to Surreply [Doc. #47], at 3). Because Merge's Accused Products convert images to a browser compatible format on a first computer or server, albeit "on the fly" and only after a user request, Heart IT argues that Merge's products infringe the '381 Patent. (Response to Surreply [Doc. #47], at 3).

However, a consideration of Figure 1 and Figure 3 within the specification supports a finding that Merge has raised a substantial question concerning infringement based on the

Accused Products' utilization of "on the fly" processing. Figure 1 is classified as "Prior Art" and "depicts a prior art method for user to view images from a scanner." ('381 Patent, col. 5, lines 40-41). Figure 1 details a process by which a user requests a single image and the "user must wait" while the single image is converted into a web compatible format. ('381 Patent, Fig. 1). This waiting period is further described in the specification as introducing "a delay of seconds to minutes while the person requesting to view the image waits for the data to be processed." ('381 Patent, col. 3, lines 5-7). When referring to Figure 1, the specification notes that "serial processing of image data 'on the fly' combined with extensive user interaction results in a slow, expensive, and unstable system." ('381 Patent, col. 3, lines 59-61).

In contrast, Figure 3 "depicts a system overview of an embodiment of the Present Invention for providing a user with images from a scanner." ('381 Patent, col. 5, lines 44-46). In Figure 3, the preferred embodiment details a process in which images acquired on a scanner are converted into a web compatible format before a user requests any images. Thus, the conversion process occurs with "no user interaction." ('381 Patent, Fig. 3). Further, because the images are pre-converted, when a user requests images, the "user waits minimal time" for the images to load. ('381 Patent, Fig. 3). This minimal wait time is further highlighted in the specification's description of the preferred embodiment of the claimed invention, which notes that "[b]ecause images are already stored in the format of Internet Web Pages, no processing of the data is required resulting in maximum speeds for image access and transfer and ensuring minimum costs for the overall system." ('381 Patent, col. 10, lines 3-7).

The claim language relevant to the issue of "on the fly" processing requires that images

be "converted to a browser compatible format *before* being transmitted over the Internet." ('381 Patent, col. 11, lines 49-51) (emphasis added). Based on the relevant Figures and portions of the specification discussed above, there is a substantial question as to whether a proper construction of this claim term encompasses a process requiring both the conversion of an image before transfer and the conversion of an image before a user request. If the "before" limitation were construed to extend to conversion before a user request, the Accused Products would not infringe on every element of claim 1, as the Accused Products perform conversion "on the fly" only after a user request. In that regard, the Court finds that Merge has raised a substantial question regarding infringement.

Further, to the extent the Court finds that Merge has raised a substantial question regarding infringement, the Court also finds that Heart IT has not shown that this question lacks substantial merit. Instead, within its briefing addressing its Motion for a Preliminary Injunction, Heart IT did not offer a proposed construction of the relevant claim term requiring that the images be "converted to a browser compatible format *before* being transmitted over the Internet." ('381 Patent, col. 11, lines 49-51)(emphasis added). While Heart IT contends that the "on the fly" conversion is "irrelevant," it has failed to provide sufficient evidence and arguments to support such a contention at the preliminary injunction stage. Instead, a substantial question remains as to whether an "on the fly" processing system infringes on claim 1 of the '381 Patent. Accordingly, because Merge has raised a substantial question concerning infringement and Heart IT has failed to show this question lacks substantial merit, the Court finds that Heart IT has not shown a likelihood of success regarding infringement.

2. Likelihood of Success: Validity of Claim 1 of the '381 Patent

Even assuming, *arguendo*, that Heart IT has shown a likelihood of success on the issue of infringement, in order to show a likelihood of success on the merits, Heart IT must also show a likelihood of success on the issue of the validity of the '381 Patent. In the context of a preliminary injunction, "while the burden of proving invalidity is with the party attacking validity, the party seeking the injunction retain[s] the burden of showing a reasonable likelihood that the attack on its patent's validity would fail." Oakley, 316 F.3d at 1340-41 (internal quotations omitted). In that regard, "[w]hen the presumptions and burdens applicable at trial are taken into account, the injunction should not issue if the party opposing the injunction raises 'a substantial question concerning infringement or validity, meaning that it asserts a defense that [the party seeking the injunction] cannot prove lacks substantial merit.'" Id. at 1341.

Here, Merge argues that the '381 Patent is invalid by reason of anticipation by prior art publications. Pursuant to 35 U.S.C. § 102, a claim is fully anticipated and thus invalid if "each and every limitation is found either expressly or inherently in a single prior art reference." Id. at 1339. In support of its invalidity argument, Merge contends that two separate prior art publications fully anticipated claim 1 of the '381 Patent: (1) an article published in April of 2000 entitled "On-demand Server-side Image Processing for Web-based DICOM Display" ("Sakusabe et al.") and (2) an article published in 1997 entitled "Web-Based Radiology Applications for Clinicians and Radiologists" ("Feingold et al."). The background of each potential prior art reference will be discussed in turn, followed by an analysis of potential anticipation.

A. April 18, 2000: Sakusabe et al.

As summarized by Merge's expert Dr. Shih, the Sakusabe et al. reference ("Sakusabe") teaches the "implementation of an imaging workstation" with "web based image display [that] could have the look and feel of an imaging workstation." (Declaration of Dr. Shih [Doc. #27], at 12). Sakusabe was published on April 18, 2000 and resulted from a conference on February 12, 2000. Based on these dates, Sakusabe is properly considered prior art.[9]

With regard to the merits of Sakusabe, Merge, through Dr. Shih, compares each of the six elements of claim 1 of the '381 Patent to the process described in Sakusabe in order to demonstrate anticipation. Merge describes Sakusabe as detailing a process through which DICOM images resulting from a patient's medical imaging procedure are received at a first computer. A URL associated with a particular image can be used, and an HTML document is generated from attributes of DICOM files. In response to a client request for images, images

[9]The Court notes that the parties dispute whether Sakusabe is in fact prior art based on its publication date. Heart IT, through the Declaration of Dr. Judd, contends that "[t]he Sakusabe paper . . . was published six months *after* the invention of the '381 Patent was disclosed to Northwestern University in August 1999." (Second Declaration of Robert Judd [Doc. #33], at 5). However, "a patent's claims are not entitled to an earlier priority date merely because the patentee claims priority." In re NTP, Inc., 654 F.3d 1268, 1276 (Fed. Cir. 2011). Instead, "the art must have existed as of the date of invention, presumed to be the filing date of the application until an earlier date is proved." Id. (internal quotations omitted). Here, the filing date of the '381 Patent is September 29, 2005. Because the '381 Patent was filed as a continuation in part of the '656 and '698 Patents at issue in the underlying case, the'381 Patent could arguably date back to December 20, 2000, the filing date for the '698 Patent. However, Heart IT offers no evidence, beyond Dr. Judd's statement, to support a priority date for the '381 Patent of August of 1999. Thus, while Heart IT would not be precluded from proving evidence of this earlier priority date at a later stage of the proceeding, for the purposes of a preliminary injunction, Heart IT has not shown an August 1999 priority date. Further, even using the earlier '698 Patent filing date of December 20, 2000, Sakusabe is properly considered prior art at this stage.

are processed on the server-side and delivered to the client immediately. These images are displayed in a "directory" where users can "change the layout of images, navigate with thumbnails, zoom into a clicked position, and change the Window Center/Width in real-time by dragging mouse." (Sakusabe et al. [Doc. #27-9], at 5). The system of Sakusabe does not require Java plug-ins to process images on the client-side, but instead, "images are processed on [the] server-side when a client requests and delivered to the client immediately." (Sakusabe et al. [Doc. #27-9], at 3). Finally, the system of Sakusabe emulates a medical image workstation without the need for downloading additional software, specifically noting that the "implementation of an imaging workstation . . . shows that Web based image display could have the look and feel of an imaging work station." (Sakusabe et al. [Doc. #27-9], at 7). However, Sakusabe recognizes the limitations of its system, noting that not "all imaging workstations could be replaced by Web browsers" as "there is some lack of performance" with the quality of the images. (Sakusabe et al. [Doc. #27-9], at 7). Still, Sakusabe acknowledges that its system may be "useful for most of clinicians in a hospital, and for a radiologist who is in the situation that he/she could not use [a] high performance imaging workstation." (Sakusabe et al. [Doc. #27-9], at 7). Based on these interpretations of Sakusabe, Merge contends that Sakusabe teaches every element of claim 1 of the '381 Patent.

B. 1997: Feingold et al.

The Feingold et al. reference ("Feingold") generally describes a "Web based application[] for clinicians and radiologists [that] provide[s] wide spread, cost-effective and easy access to radiological information" with all studies viewed within the application "automatically

transfer[ring] through a web sever for processing before being displayed." (Feingold et al. [Doc. #27-11], at 2). The article was published in 1997. As such, Feingold is properly considered prior art.[10]

With regard to the merits of Feingold, Merge, through Dr. Shih, compares each of the six elements of claim 1 of the '381 Patent to the process described in Feingold in order to demonstrate anticipation. Generally, Merge describes Feingold as detailing a process where DICOM images are first received at a web server to be processed, and a report database with studies associated with a patient medical imaging procedure is then provided. (Def.'s Initial Response Brief [Doc. #26], at 8). Once a study is selected, a "multi-frame HTML document is loaded" which includes a "series frame" that is "filled with thumbnails of each image in a selected series." (Feingold et al. [Doc. #27-11], at 8). After selecting a thumbnail, a full-sized image or series of images will be loaded into the frame, and the diagnostic report, if available, will load into the report frame as well. (Feingold et al. [Doc. #27-11], at 8). No additional software is needed to view these images on the second computer because all images are stored in "DICOM and GIF formats" and "Netscape 3.x browser supports both GIF and JPEG formats natively." (Feingold et al. [Doc. #27-11], at 10). Feingold notes that this system avoids "the temptation to use 'plug-ins' to bypass the limitations of HTML and JavaScript." (Feingold et al. [Doc. #27-11], at 12). Based on this process, Merge argues that Feingold anticipates every element of claim 1 of the '381 Patent.

[10]Heart IT does not dispute Feingold's classification as prior art based on its date of publication.

C. Sakusabe and Feingold: Anticipation Arguments

In contrast to Merge's contentions, Heart IT argues that neither Sakusabe nor Feingold anticipate claim 1 of the '381 Patent. To support this contention, Heart IT stresses that Sakusabe and Feingold do not describe medical imaging systems that permit medical diagnosis, but instead describe medical imaging systems limited to report distribution. Specifically, Heart IT notes that "there have historically been two different types of medical imaging systems." (Reply Brief [Doc. #32], at 5). The first, a diagnostic imaging system, is a system in which the radiologist navigates through all of the images of the study to make a diagnosis. The second, report distribution, includes the radiologist's diagnosis and some illustrative images from the study for the purposes of record keeping and/or patient consultation. (Reply Brief [Doc. #32], at 5). Heart IT contends that the '381 Patent claims a diagnostic imaging system, while Sakusabe and Feingold facilitate report distribution but not medical diagnosis.

With regard to Sakusabe, Heart IT cites to language within Sakusabe noting that not "all imaging workstations could be replaced by Web browsers," as "there is some lack of performance" because a radiologist may need "large and high quality images." (Sakusabe et al. [Doc. #27-9], at 7). In contrast, claim 1 of the '381 Patent states that a medical image workstation will allow navigation among images "to permit medical diagnosis" from such images. ('381 Patent, col. 12, line 6). In order to permit medical diagnosis, the specification of the '381 Patent provides that "using the Present Invention a database of images [c]an [sic] be constructed with the maximum Internet performance and without loss of diagnostic information." ('381 Patent, col. 10, lines 63-65). Heart IT contends that Sakusabe is not prior

art anticipating claim 1 of the '381 Patent because it only permits report distribution and not medical diagnosis.

However, while Sakusabe recognizes a possible "lack of performance" regarding the quality of images, Sakusabe also emphasizes its usefulness for "a radiologist who is in the situation that he/she could not use a high performance imaging workstation." (Sakusabe et al. [Doc. #27-9], at 7). In that regard, no language in Sakusabe precludes this usefulness from permitting medical diagnosis, even if the radiologist is not viewing the images at a high performance imaging workstation. Further, while claim 1 of the '381 Patent describes a "medical image workstation" that "enables user navigation among the plurality of navigational images . . . to permit medical diagnosis," a question remains as to what image quality is sufficient "to permit medical diagnosis." ('381 Patent, col. 12, lines 3-8). Guidance within the specification of the '381 Patent indicates that images are converted "without a loss of diagnostic data." ('381 Patent, col. 5, line 25). However, the claim language and specification does not indicate that full resolution is required for an image to retain its diagnostic data, and Heart IT has not presented sufficient evidence at this time for the Court to read this limitation into the claim.[11]

Further, with regard to Feingold, Heart IT argues that because of the lossy compression[12]

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[11]The Court notes that in Dr. Judd's Second Declaration, Dr. Judd himself recognizes that "[He] do[es] not dispute that a handful of selected, lossy, non-diagnostic images may occasionally be diagnostically useful." (Second Declaration of Robert Judd [Doc. #33], at 6).

[12]Lossy compression is a process that "achieves its reduction in file size by eliminating some of the data in the file being compressed." Universal City Studios, Inc. v. Reimerdes, 111 F.Supp.2d 294, 314 n.107 (S.D.N.Y. 2000).

that takes place in Feingold, which Heart IT contends discards 75% of the image pixels, Feingold is not capable of medical diagnosis. (Reply Brief [Doc. #32], at 6). While Feingold itself refers to a "Full-Size button" that "allows for viewing the current image at full resolution in a new browser window that is sized at the full screen resolution," Heart IT contends that this full resolution display allows for stretching the GIF image which has already been reduced and does not allow for viewing of the original image at full resolution. (Response to Surreply [Doc. #47], at 5). Even if this contention is correct and the original image cannot be viewed at full resolution under Feingold, Heart IT has not shown that an image must be viewed at full resolution in order to permit medical diagnosis under the '381 Patent. In that regard, while Heart IT asserts that "no medical imaging professional would contend that images with only 25% of their original resolution should be used to make medical diagnosis," Heart IT has not provided sufficient evidence to support this contention. (Response to Surreply [Doc. #47], at 5). As such, the Court cannot determine, at this stage, that an image with only 25% of its original resolution cannot permit medical diagnosis in certain instances. Thus, Heart IT's contentions regarding the distinctions between report distributions and medical diagnosis do not show that Merge's contentions regarding the prior art lack substantial merit.

Additionally, with regard to both Sakusabe and Feingold, Heart IT argues against anticipation based on each system's failure to teach the ability to view multiple images within a single series and navigate between series. However, Sakusabe states that its "image display system, the SeriesViewer . . . displays a series of DICOM images in a directory" where a user can then "change the layout of images, navigate with thumbnails, [and] zoom into a clicked

position." (Sakusabe et al. [Doc. #27-9], at 5). Further, Feingold explains that after converting images, a "Study Frame" is provided that contains "thumbnail sized images from each study in the patient's folder." (Feingold et al. [Doc. #27-11], at 8). Feingold also provides a "Series Frame" that is "filled with thumbnails of each image in a selected series." (Feingold et al. [Doc. #27-11], at 8).

In comparison, the '381 Patent claims a method for managing medical information including "receiving at a first computer a plurality of image series" with "each image series comprising of one or more digital medical images." ('381 Patent, col. 11, lines 19-25). This language indicates that a "series" need only be comprised of one or more digital medical images. Thus, Heart IT's argument that both Feingold and Sakusabe only receive a plurality of single images does not distinguish the '381 Patent from Feingold and Sakusabe, because a "series" can be a single image, and navigation between two single images could consist of navigation between two series, each series having only one image. Thus, Heart IT's arguments regarding the series distinctions do not show that Merge's contentions regarding the prior art lack substantial merit.

Overall, based on the above analysis, Merge has raised a substantial question as to whether Sakusabe and Feingold "clearly [teach] key limitations of the claims of the ['381 Patent]." See Amazon.com, Inc. v. Barnesandnoble.com, Inc., 239 F.3d 1343, 1359 (Fed. Cir. 2001). In response, the arguments offered by Heart IT do not show that Merge's contentions lack substantial merit. Accordingly, the Court finds that Heart IT has not shown a likelihood of success on the merits regarding invalidity.

B. LIKELIHOOD OF IRREPARABLE HARM

Even assuming, *arguendo*, that Heart IT has shown a likelihood of success on the merits, in order to obtain a preliminary injunction, Heart IT must also show that it will likely suffer irreparable harm in the absence of preliminary relief. A patentee seeking a preliminary injunction must "make a clear showing that it is at risk of irreparable harm, which entails showing a likelihood of substantial and immediate irreparable injury." Apple Inc. v. Samsung Elecs. Co., Ltd., 695 F.3d 1370, 1374 (Fed. Cir. 2012) ("Apple II") (internal quotations omitted). However, in cases "where the accused products include many features of which only one (or a small minority) infringe," the "patentee must also establish that the harm is sufficiently related to the infringement." Id. Here, the Accused Products "incorporate many features, of which the 'zero-footprint' feature is only one." (Def.'s Initial Response Brief [Doc. #26], at 20). Thus, in order to show irreparable harm based on a loss of market share, Heart IT must show "1) that absent an injunction, it will suffer irreparable harm, and 2) that a sufficiently strong causal nexus relates the alleged harm to the alleged infringement." Apple II, 695 F.3d at 1374.

Further, a claim of irreparable harm based on a loss of market share cannot be shown if sales would be lost regardless of the infringing conduct. Apple, Inc. v. Samsung Elecs. Co., Ltd., 678 F.3d 1314, 1324 (Fed. Cir. 2012) ("Apple I"). Indeed, a "mere showing that [a patentee] might lose some insubstantial market share as a result of [an alleged infringer's] infringement is not enough." Id. However, the "likelihood of price erosion and loss of market position" can be considered as evidence of irreparable harm. Purdue Pharma L.P. v. Boehringer Ingelheim GmbH, 237 F.3d 1359, 1368 (Fed. Cir. 2001); see also Polymer Techs., Inc. v. Bridwell, 103 F.3d 970, 975-76 (Fed. Cir. 1996) (finding that loss of market opportunities is

evidence of irreparable harm).

Generally, Heart IT alleges that it will suffer irreparable harm if an injunction is not granted based on the rapidly changing medical imaging market. Because medical facilities are current in the process of converting to electronic health records ("EHR"), Heart IT argues that every sale Merge makes using its Accused Products "locks in another customer that will not be likely to purchase Heart IT's WebPax® zero-footprint viewer." (Pl.'s Opening Mem. [Doc. #16], at 5). Because the EHR transition is being "funded by the Federal government, with billions in dollars of incentives to encourage 'meaningful use'[13] of EHRs" and Heart IT alleges that zero-footprint technology is "now the best available technology for achieving the MU imaging standards for EHR systems," Heart IT contends that "several thousand hospitals in the US [sic] will be looking at zero-footprint viewers over the next 1-2 years as part of their move to EHR." (Pl.'s Opening Mem. [Doc. #16], at 5, 19). More specifically, Heart IT contends that "85% of the hospitals in the US [sic] have announced plans to participate in the program" and "[i]f Merge is allowed to obtain market share by virtue of its infringement, Heart IT will be irreparably harmed." (Pl.'s Opening Mem. [Doc. #16], at 6).

With regard to Heart IT's loss of market share contentions, it is first necessary to determine the relevant market to be considered. In its opening brief, Heart IT's defines the relevant market as the "zero-footprint viewer" market, but Merge argues that this characterization is "too narrow" because zero-footprint viewers compete directly in a market

[13]Heart IT refers to this "meaningful use" requirement under the EHR transition as "MU" throughout its briefing.

with viewers that require a download. (Def.'s Initial Response Brief [Doc. #26], at 14). In that regard, Merge contends that the relevant market is "the market for all web-based medical image viewers." (Def.'s Initial Response Brief [Doc. #26], at 14). However, while Heart IT's and Merge's products are competing within the market for all web-based medical image viewers, including both viewers that utilize zero-footprint technoloy and viewers that do not utilize such technology, a consideration of medical images viewers that do not utilize zero-footprint technology could lead to an inaccurate estimation of potential harm based on Merge's alleged infringement. Thus, the relevant market seems to be that originally identified by Heart IT as the "zero-footprint viewer" market. This market would include all products within the medical imaging market that utilize "zero-footprint viewer" technology as at least one aspect of the product.[14]

Proceeding with the relevant market as the market for medical imaging products that utilize zero-footprint viewer technology, the Court must determine whether Heart IT has shown sufficient harm, and, if so, whether Heart IT has shown a sufficient causal nexus between the alleged harm and the alleged infringement. To support a showing of harm and a causal nexus between this harm and the alleged infringement, Heart IT cites to specific instances of competition between Heart IT and Merge. For example, Merge and Heart IT competed against

[14]Defining the relevant market as the "zero-footprint viewer" market does not automatically establish the causal connection necessary to show irreparable harm. Instead, even using the defined market of products utilizing "zero-footprint viewer" technology, Heart IT still must show that the zero-footprint feature of the Accused Products drives the demand for the products in order to provide a causal nexus between the alleged harm and the alleged infringement. See Apple II, 695 F.3d at 1375.

each other in a "Request for Proposal" ("RFP") from St. Vincent Health System in Indianapolis, Indiana in early 2010. At this time, Heart IT prevailed over Merge and nine other bidders to win a contract to provide imaging systems at St. Vincent Health System. (Reply Brief [Doc. #32], at 11). However, Heart IT contends that after receiving its contract with St. Vincent Health, the parent organization of St. Vincent Health, Ascension Health, began an evaluation of medical image management systems with the goal of selecting a preferred vendor for all of its 500 locations. (Second Declaration of Robert Judd [Doc. #33], at 15). On February 4, 2013, "Heart IT was notified that Merge had been selected as a preferred provider for all 500 of Ascension Health System's locations, including [St. Vincent Health System], and that at the conclusion of its current contract, Heart IT would probably be displaced by Merge at St. Vincent's." (Reply Brief [Doc. #32], at 11). Regarding the value of this specific contract, Heart IT cites to Merge's 2012 Investor Presentation that lists a "$2+ million" sale to "Ascension Health" as one of Merge's "recent significant wins." (Merge Investor Presentation [Doc. #33-16], at 10).

Heart IT provides another specific example of competition with Merge occurring in early 2012 and involving negotiations with St. Francis Hospital, a member of the larger Franciscan Alliance comprised of 13 different hospitals. (Second Declaration of Robert Judd [Doc. #33], at 16). Heart IT contends that St. Francis Hospital "was very interested in [Heart IT's] WebPAX" and "appeared ready to sign paperwork," but then "abruptly stopped talking to Heart IT with no clear reason." (Second Declaration of Robert Judd [Doc. #33], at 16). Soon after these negotiations, Merge issued a Press Release stating that "Franciscan Alliance, Inc. has selected Merge Healthcare's iConnect Access* to image-enable their EMR and provide real-time

access to radiology and cardiology images and information across its network of 13 hospitals in Indiana and Illinois." (Merge Press Release [Doc. #33-17], at 1). Heart IT emphasizes that Merge's press release further noted that "iConnect Access provides a true 'zero-footprint' image viewing capability." (Merge Press Release [Doc. #33-17], at 1).

In addition to providing specific examples of competition, Heart IT also contends that prior to Ascension Health's selection of Merge as its preferred provider for EHR image integration, Heart IT had regular interaction with Ascension Health's "Digital Imaging Community of Excellence" ("DICE"), which includes an individual named Carol Joseph. (Second Declaration of Robert Judd [Doc. #33], at 17). However, Heart IT contends that in recent months, Heart IT and DICE have stopped communicating, "yet Ms. Joseph was a speaker at Merge's August 2012 Client Conference." (Second Declaration of Robert Judd [Doc. #33], at 17). Because "[e]xtensive communication with customers is of fundamental importance to vendor product development," Heart IT contends that this is another example of irreparable loss of market share. (Second Declaration of Robert Judd [Doc. #33], at 17).

In response, Merge contends that "the examples HIT cites . . . do not support a finding of irreparable harm because HIT does not prove that its losses to Merge are the result of the allegedly infringing feature in the Accused Products." (Merge Surreply [Doc. #36], at 10). Because the Accused Products "incorporate many features, of which the 'zero-footprint' feature is only one," Merge contends that Heart IT has not shown that the zero-footprint feature drove the demand for Merge's products in any of the specific examples provided by Heart IT. (Def.'s Initial Response Brief [Doc. #26], at 17). Instead, Merge contends that there are "several

important factors when deciding which [Picture Archiving and Communication] system including an image viewer to purchase for a hospital," including the "reputation of the product and company, quality and terms of the service contract, and the ability for the [Picture Archiving and Communication] system to integrate with other existing information systems in the department and throughout the hospital." (Declaration of Dr. Shih [Doc. #27], at 33). In that regard, Merge contends that Heart IT has failed to provide sufficient evidence to show that the zero-footprint feature of Merge's Accused Products drives the demand for such products.

As previously discussed, where an accused product includes many features of which only one or a small minority allegedly infringe,"[t]o show irreparable harm, it is necessary to show that the infringement caused harm in the first place." Apple I, 678 F.3d at 1324. With regard to this causal connection, the Federal Circuit has recognized the following:

> Sales lost to an infringing product cannot irreparably harm a patentee if consumers buy that product for reasons other than the patented feature. If the patented feature does not drive the demand for the product, sales would be lost even if the offending feature were absent from the accused product. Thus, a likelihood of irreparable harm cannot be shown if sales would be lost regardless of the infringing conduct.

Id. at 1324.

Accordingly, the Court must determine whether Heart IT has provided enough evidence to show that it will suffer a loss of market share and that this loss of market share is due to the zero-footprint viewer feature included within Merge's Accused Products. Heart IT's evidence of specific instances in which Heart IT lost a competing bid to Merge demonstrates a loss of market share. However, Heart IT fails to provide sufficient evidence to support a finding that this loss of market share was due to the zero-footprint feature utilized within the Accused

Products. For example, with regard to St. Vincent Health Systems, Heart IT offers the Declaration of Dr. Judd, in which he states that when Heart IT was originally selected as the winner of the RFP competition in early 2010, "to the best of [his] knowledge, Merge did not offer a zero-footprint viewer to [St. Vincent Health Systems] at the time of this RFP competition." (Second Declaration of Robert Judd [Doc. #33], at 15). Further, Heart IT contends that since "a major change in Merge's product line since 2010 is its focus on interoperability and iConnect access," Heart IT has shown that the loss of the contract with Ascension Health, which includes St. Vincent Health Systems, was caused by Merge's alleged infringement. (Reply Brief [Doc. #32], at 11). However, Dr. Judd's belief that Merge did not utilize zero-footprint technology in 2010 but was utilizing the technology later when it won the contract from Ascension Health is not sufficient to establish to a causal nexus between the harm and the alleged infringement. Indeed, this observation does not indicate that the addition of the zero-footprint viewer was the only feature distinguishing Merge's later product line from the product line offered in 2010. Further, Heart IT does not provide evidence to show that the zero-footprint feature was even a factor in Ascension Health's decision to contract with Merge. In that regard, Heart IT has not provided sufficient evidence to establish a causal nexus between the alleged harm and the alleged infringement.

Additionally, with regard to the Franciscan Alliance contract, to support a causal connection, Dr. Judd's Declaration cited to a Press Release issued by Merge announcing that "Franciscan Alliance, Inc. has selected Merge Healthcare's iConnect Access* to image-enable their EMR and provide real-time access to radiology and cardiology images and information

across its network of 13 hospitals in Indiana and Illinois." (Merge Press Release [Doc. #33-17], at 1). Within this Press Release, Heart IT highlighted the language by Merge that "iConnect Access provides a true 'zero-footprint' image viewing capability' to support its contentions that zero-footprint technology was the dominant feature behind Merge's contract with Franciscan Alliance, Inc. However, in this same Press Release, the Senior Vice President of Information Services at Franciscan Alliance, Inc., specifically stated that the company was "pleased to realize that not only could we provide anywhere, any time access to radiology images - our original goal - but that iConnect Access could also connect to our archive of cardiology images," which was "not something that [Franciscan Alliance, Inc.] initially expected but was one of the factors that [Franciscan Alliance, Inc.] used in deciding to purchase iConnect." (Merge Press Release [Doc. #33-17], at 1). Thus, the Press Release indicates that a product feature focused on the archiving of materials was one of the factors that influenced the Franciscan Alliance's decision to purchase iConnect. The Press Release does not indicate that this archiving feature involves "zero-footprint" technology, and Heart IT offers no such evidence. Further, the mention of the "zero-footprint" capabilities in the Press Release is highlighted by Merge itself, not by any representative of the Franciscan Alliance. Thus, with regard to the Franciscan Alliance, Heart IT has not provided sufficient evidence that the zero-footprint viewer drove the demand for Merge's iConnect Access.

Further, to the extent that Heart IT contends that Merge's alleged infringement has harmed Heart IT's communication with customers, Heart IT again fails to provide sufficient evidence to support this contention. While Heart IT provides that it had regular interactions

with Ascension Health's DICE and these communications have now "apparently shifted to Merge," this contention itself is not sufficient evidence of a causal connection between the alleged harm and the alleged infringement. (Second Declaration of Robert Judd [Doc. #33], at 17). Indeed, Heart IT has not provided evidence that its decline in communications with DICE is in any way related to Merge's alleged infringement. Evidence that Heart IT's communications with DICE have ceased while Merge's communications with DICE continue is not sufficient, on its own, to support the necessary showing of causation.

Ultimately, in order to show irreparable harm, Heart IT must show "1) that absent an injunction, it will suffer irreparable harm, and 2) that a sufficiently strong causal nexus relates the alleged harm to the alleged infringement." Apple II, 695 F.3d at 1374. This causation will not be present "[i]f the patented feature does not drive the demand for the product." Id. Here, even assuming that the evidence presented by Heart IT regarding specific instances of competition with Merge is sufficient to show Heart IT will suffer irreparable harm absent an injunction, Heart IT has not sufficiently shown a causal nexus relating the alleged harm to the alleged infringement. In that regard, Heart IT has not provided sufficient evidence that the harm caused by the specific instances of competition with Merge were based on the Accused Products' alleged infringement. Without such evidence, Heart IT has not carried its burden of showing irreparable harm. Accordingly, the Court finds that Heart IT has not shown a likelihood of suffering irreparable harm in the absence of a preliminary injunction.[15]

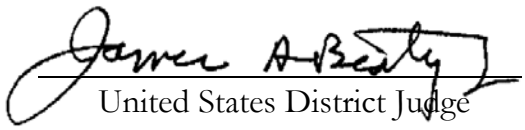
[15]Because the Court has found that Heart IT has not shown a likelihood of success on the merits or irreparable harm, the Court need not address the remaining two factors. See Attic Tent Inc. v. Copeland, No. 3:06CV66, 2006 WL 839085 (W.D.N.C. Mar. 28, 2006) ("[B]efore

III. CONCLUSION

Based on the foregoing, the Court finds that Heart IT has not carried its burden of showing a likelihood of success on the merits, as Merge has raised substantial questions concerning infringement and invalidity and Heart IT has not shown these contentions lack substantial merit. Further, as to irreparable harm, the Court finds that Heart IT has not sufficiently shown a causal nexus relating the alleged harm to the alleged infringement. As such, the Court will deny Heart IT's Motion for a Preliminary Injunction.

IT IS THEREFORE ORDERED that Plaintiff Heart Imaging Technologies, LLC's Motion for a Preliminary Injunction [Doc. #15] is hereby DENIED.

This, the 14th day of August, 2013.



United States District Judge

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denying a motion for a preliminary injunction, the Court need not make findings concerning the balance of hardships or on the public interest if the moving party fails to establish either likelihood of success on the merits or irreparable harm.").